EKM iSERIAL v.2

TCP/IP to RS232/422/485 Converter

User's Manual

1.0 Introduction

The EKM iSERIAL is a cost effective and highly integrated Serial-to-Ethernet Converter. Embedding a 8051CPU, 64KB OTP ROM, 32K bytes SRAM, 10/100Mbps Ethernet and serial port support handshake RTS, CTS. The EKM iSERIAL can control 1 x RS232/422/485 devices located virtually anywhere (via Ethernet or Internet). Automatically finds devices in the network Configuration over Driver Panels, serial Port,Telnet,WEB Browser, SNMP Automatic mode switching between Driver and RAW mode Support TCP/IP, UDP, DHCP, PPPoE.

2.0 Features:

- ♦ 3-in-1 RS-232/422/485 interface Max.230Kbps Serial interface and 10/100 Mbps Ethernet
- ♦ Supports 4- and 2-wire RS-485 with AUTO-SEND™ and built-in terminator
- ♦ Supports industrial 24 VDC power input.
- ♦ Terminal block accessories for easy RS-422/485 serial wiring
- ♦ Supports IP configuration by MAC address
- ♦ Supports configuration store and copy for easy deployment
- ♦ Supports Driver, TCP Server/Client, UDP Server/Client, Pair Connection operation modes
- ♦ Easy and powerful configuration program
- ♦ Approval CE, RoHS

3.0 . Hardware Installation & Initial Setup

3.1 RS-232 Pinout：（DB9 Male）

（DB9Male）	Signal	I/O
PIN2	RXD	IN
PIN3	TXD	OUT
PIN5	GND	-
PIN7	RTS	OUT
PIN8	RTS	IN

3.2 RS-422/485 Pinout：（six Terminal from left）

Terminal No	1	2	3	4	5	6
RS-422	T+	T-	R+	R-	9-24 VDC	GND
RS-485	485+	485-	-	-	9-24 VDC	GND

3.3 Connect to 10/100M：

EKM iSERIAL 10/100/M Port. Connect to a switch or HUB using a straight-through cable

3.4 Power Supply

The EKM iSERIAL TCP/IP converter can use the product's 9V power adapter for power supply or use other DC power or device.(9-24VDC, @500-1000mA)。

3.5 EKM iSERIAL LED indication：

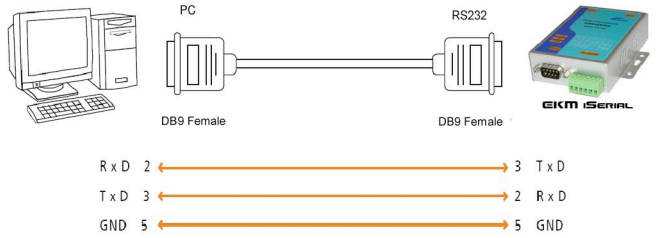
LINK —— Indication Ethernet Link，Green on Ethernet Link established。

ACT —— Data Sending/Receiving between Serial and the Ethernet

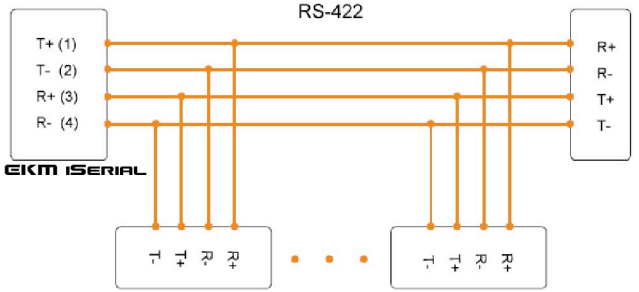
PWR —— Indication of Power ON

3.6 Connection Diagram

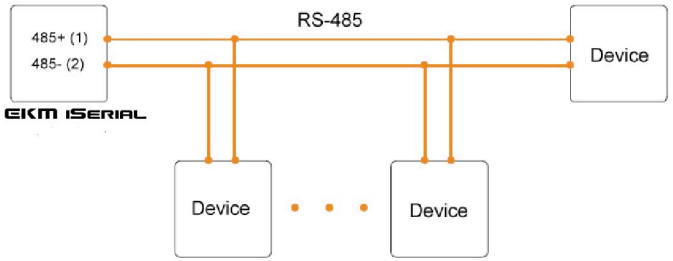
RS-232 Connection



RS-422 Connection



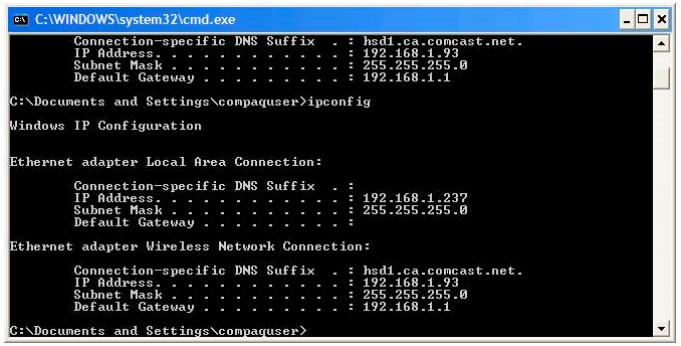
RS-485 Connection



4.0 Configuration and Operation

For your computer to be able to communicate with your EKM iSERIAL, your computer must have an Ethernet card and TCP/IP installed. TCP/IP should already be installed on computers using Windows 98/2000/XP and later operating systems. If your LAN (Local Area Network) already uses the IP address range 192.168.1.xxx, skip to section 4.3. If not, use section 4.2 to set up your computer to assign it a static IP address in the 192.168.1.2 to 192.168.1.254 range with a subnet mask of 255.255.255.0. If you are not sure what your LAN IP address range is, use the following section **4.1**.

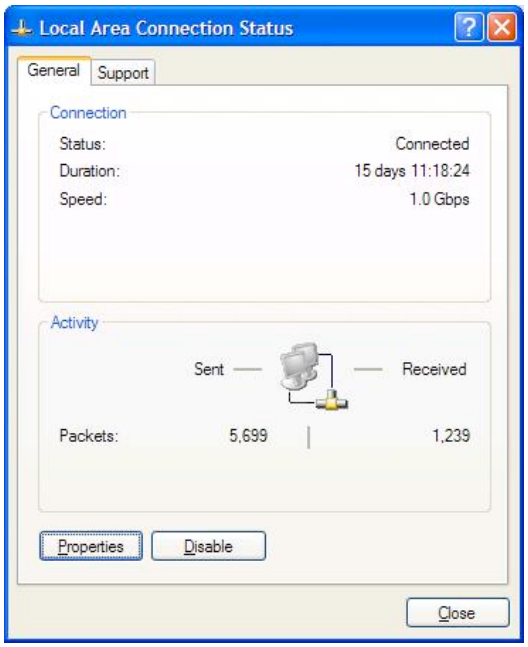
4.1 From the START menu, choose “Run…”. Type “cmd” (no quotes) in the edit field and click “OK”. In the window that opens, type “ipconfig” (no quotes) and hit the ENTER key.



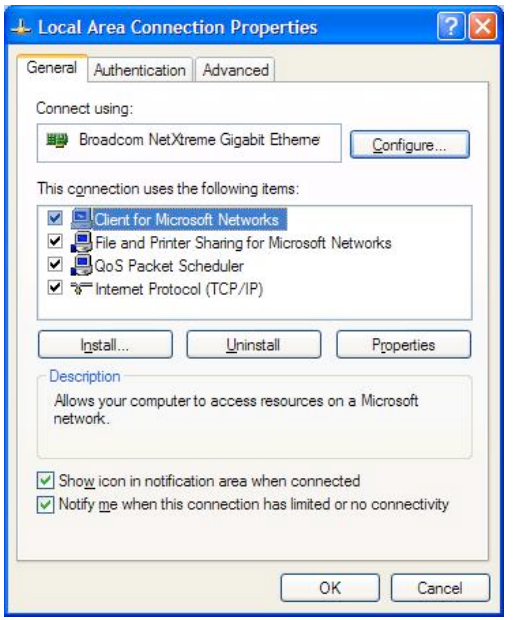
The information returned will tell you your IP address. If “IP address” is in the range range 192.168.1.xxx, skip to section **4.3**. If not go to the following section **4.2.**

4.2 Step 1：From the **START** menu, choose Settings-->Control Panel -->Network Connections. Double-click the “Network Connections” icon. In the “Network Connections” window, double-click “Local Area Connection”.

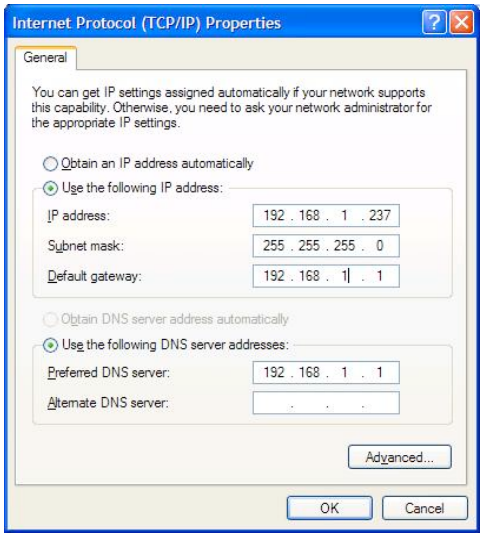
In the “Local Area Connection Status” window, click the “Properties” button.



In the “Local Area Connection Properties” window, select “Intrnet Protocol (TCP/IP)” and click the “Properties” button.



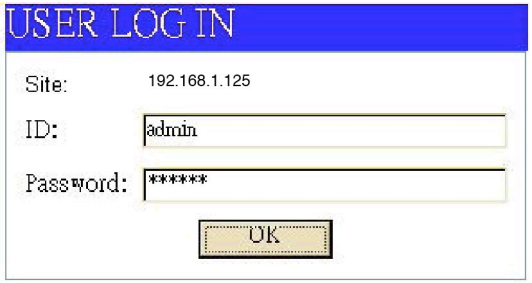
In the “Intrnet Protocol (TCP/IP) Proerties” window, note if “Obtain and IP address automatically” or “Use the following IP Address” is selected. If “Use the following IP Address” is selected, write down the IP address and Subnet mask settings. **You will need these settings to restore your computer’s original settings.** Click the radio button for “Use the following IP Address”.



In the “IP address” line, enter the IP address: “192.168.1.237”. In the “Subnet mask” line enter “255.255.255.0”. Click “OK”. Click “OK”. Click “Close”.

Step 2：Open your web browser and type **http://192.168.1.125** in the browser’s *address box*. This address is the factory set IP Address of your EIKM ISERIAL. Press “**Enter**”.

Step 3：The **“ID and Password required”** prompt box will appear. Type “**admin**” (default username) in the ID field and typie **“admin”** (default password) in the Password field. Click “**OK**”. The setup screen will then appear.



User login to enter a password.

Default ID : admin

Default Password: admin

4.2 The menu features as below:

Administrator:
Authentication
System IP
System Status
Load default setting

Functions:
TCP Mode
UDP Mode
UART
Reset Device

All of the above functions are explained below:

4.3 Administrator Setup

Manager of the relevant setting page.

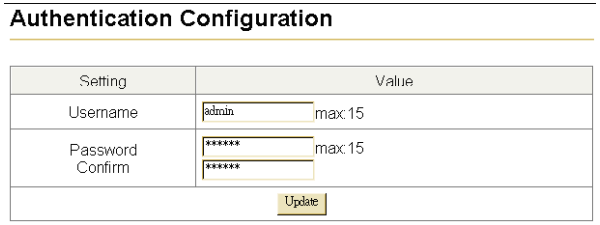
4.4 Authentication Configuration

The Users can change the username and password to prevent unauthorized access.

Login ID and password authentication, the maximum is 15 characters and numbers.

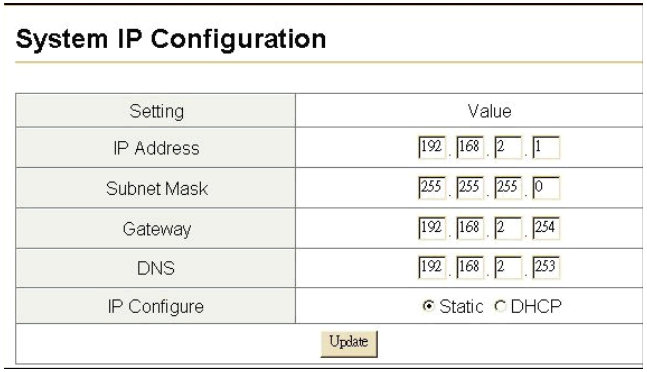
User Name: default **admin**

Password: default **admin**



4.5 System IP Configuration

The EIKM ISERIAL supports two IP connection types: Static IP, DHCP. These types are listed in the Web page for the IP Configuration setting. Each setup screen and available features will differ depending on what kind of IP connection types you select. Default is Static IP. We will only guide you through the use of Static IP and its configuration.



Static (or Fixed) IP

IP Address: default **192.168.1.125**

Subnet mask: default **255.255.255.0**

Gateway: default **192.168.1.1**

Primary DNS: default **0.0.0.0**

If you have need to change these settings, perform these steps：

Step 1: Enter IP address that is consistent with your LAN IP address range.

Step 2: Enter Subnet mask

Step 3: Enter Gateway (Router) IP address

Step 4: Enter Primary DNS IP address

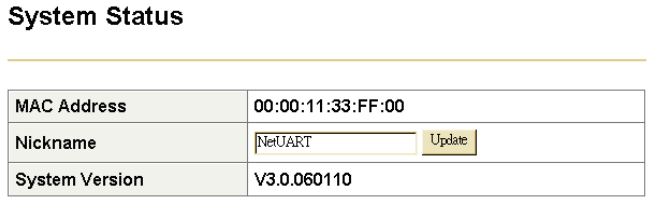
Step 5: click “Update” button

4.6 DHCP

Using DHCP will mean that the IP address of the EIKM ISERIAL may change, making it much more difficult to maintain your connection to the EIKM ISERIAL . If you choose to use DHCP, it is assumed that you have your own reasons for doing so, that you know what you are doing, and that you won’t need instruction or guidance.

5.0 System Status

This screen shows the EIKM ISERIAL current status. All of the information provided is read-only.



5.1 Load default setting

Allow Users to reset the EIKM ISERIAL to return the initial value, but the MAC Address will not be updated.

5.2 Operation mode

The EIKM ISERIAL supports four operation modes: TCP Server, TCP Client, UDP Server and UDP Client. These modes are listed in the Web page for the Operation Mode setting. Each setup screen and available features will differ depending on what kind of operation

mode you select. Default is TCP Server. EKM METERING kWh meters utilize TCP Server mode.

5.3 TCP Server

Port Number: default **50000**, range **0** to **65535**

If your device is acted as passive to accept commands from remote and the data be guaranteed to be received by peer is your concern, then you can set EKM iSERIAL as TCP Server. Be sure the value of item **Port Number** is same as your remote control application using.

Client mode inactive timeout (minutes): default **20** (0=Disable)

If you want to keep the connection between EKM iSERIAL and your remote control application always on, then set the value of item **Client mode inactive timeout (minutes)** to 0, otherwise, when the inactive time of no any traffic on line reach the setting value, EKM iSERIAL will terminate this connection.

5.4 TCP Client

Remote Connection Port Number: default **50000**, range **0** to **65535**

Remote Host IP Address: default **210.200.181.102**

If your device is acted as active to report real-time status to remote and the data be guaranteed to be received by peer is your concern, then you can set EKM iSERIAL as TCP Client. Be sure the value of item **Remote Connection Port Number** is same as your remote control application using and set the correct value of **Remote Host IP Address**.

5.5 UDP Server

Local Port Number: default **50000**, range **0** to **65535**

If your device is acted as passive to accept commands from remote and the data be guaranteed to be received by peer is *not* your concern, then you can set EKM iSERIAL as UDP Server. Be sure the value of item **Local Port Number** is same as your remote control application using.

5.6 UDP Client

Remote Connection Port Number: default **50000**, range **0** to **65535**

Remote Host IP Address: default 192.168.1.2

If your device is acted as active to report real-time status to remote and the data be guaranteed to be received by peer is *not* your concern, then you can set the EKM iSERIAL as TCP Client. Be sure the value of item **Remote Connection Port Number** is same as your remote control application using and set the correct value of **Remote Host IP Address**.

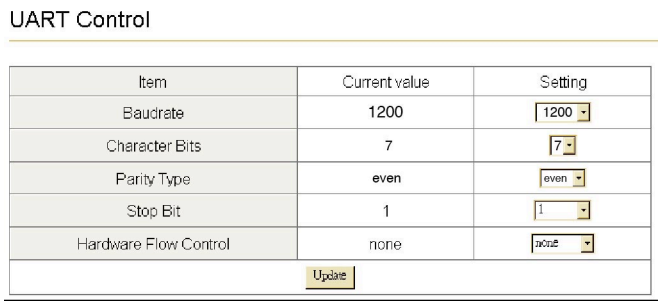
5.7 UART Control (RS-232, RS-422, RS-485)

The EKM iSERIAL supports three serial types: RS232, RS422 and RS485, Select the appropriate Mode. EKM METERING kWh meters utilize RS-485 serial mode and the following default settings:

Baud Rate: default **1200**, range 300bps to 230.4Kbps

Character Bits: 5, 6, **7**(default), 8

Parity Check: Even (default), even, odd, space, mark

Stop Bits: 1 (default), 1.5 or 2

Hardware Flow Control: None (default), CTS/RTS (or Hardware)